

# SEQUENCE LISTING

<110> Bristol-Myers Squibb Company  
Kornacker, Michael

<120> MODULATORS OF HUMAN G-PROTEIN COUPLED RECEPTORS

<130> D0286 NP

<150> U.S. 60/446,655

<151> 2003-02-11

<160> 112

<170> PatentIn version 3.2

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Ala Ala Ser Asp Leu Leu Phe Thr Leu Ser Leu Pro Val Arg Leu Ser  
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Tyr Tyr Ala Leu His His Trp Pro Phe Pro Asp Leu Leu Cys Gln Thr  
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Thr Gly Ala Ile Phe Gln Met Asn Met Tyr Gly Ser Cys Ile Phe Leu  
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Met Leu Ile Asn Val Asp Arg Tyr Ala Ala Ile Val His Pro Leu Arg  
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Leu Leu Ala Glu Ala Leu Gly Phe Leu Leu Pro Leu Ala Ala Val Val  
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Tyr Ser Ser Gly Arg Val Phe Trp Thr Leu Ala Arg Pro Asp Ala Thr  
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Gln Ser Gln Arg Arg Arg Lys Thr Val Arg Leu Leu Leu Ala Asn Leu  
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Val Ile Phe Leu Leu Cys Phe Val Pro Tyr Asn Ser Thr Leu Ala Val  
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Val Thr Thr Asp Ala Thr Arg Pro Asp Ala Ala Ser Gln Gly Leu Leu  
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Val Val Gly Phe Pro Ala Asn Cys Leu Ser Leu Tyr Phe Gly Tyr Leu  
35 40 45

Gln Ile Lys Ala Arg Asn Glu Leu Gly Val Tyr Leu Cys Asn Leu Thr  
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Val Ala Asp Leu Phe Tyr Ile Cys Ser Leu Pro Phe Trp Leu Gln Tyr  
65 70 75 80

Val Leu Gln His Asp Asn Trp Ser His Gly Asp Leu Ser Cys Gln Val  
 85 90 95

Cys Gly Ile Leu Leu Tyr Glu Asn Ile Tyr Ile Ser Val Gly Phe Leu  
 100 105 110

Cys Cys Ile Ser Val Asp Arg Tyr Leu Ala Val Ala His Pro Phe Arg  
 115 120 125

Phe His Gln Phe Arg Thr Leu Lys Ala Ala Val Gly Val Ser Val Val  
 130 135 140

Ile Trp Ala Lys Glu Leu Leu Thr Ser Ile Tyr Phe Leu Met His Glu  
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Glu Val Ile Glu Asp Glu Asn Gln His Arg Val Cys Phe Glu His Tyr  
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Pro Ile Gln Ala Trp Gln Arg Ala Ile Asn Tyr Tyr Arg Phe Leu Val  
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Gly Phe Leu Phe Pro Ile Cys Leu Leu Leu Ala Ser Tyr Gln Gly Ile  
 195 200 205

Leu Arg Ala Val Arg Arg Ser His Gly Thr Gln Lys Ser Arg Lys Asp  
 210 215 220

Gln Ile Gln Arg Leu Val Leu Ser Thr Val Val Ile Phe Leu Ala Cys  
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Phe Leu Pro Tyr His Val Leu Leu Leu Val Arg Ser Val Trp Glu Ala  
 245 250 255

Ser Cys Asp Phe Ala Lys Gly Val Phe Asn Ala Tyr His Phe Ser Leu  
 260 265 270

Leu Leu Thr Ser Phe Asn Cys Val Ala Asp Pro Val Leu Tyr Cys Phe  
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Val Ser Glu Thr Thr His Arg Asp Leu Ala Arg Leu Arg Gly Ala Cys  
 290 295 300



Leu Ala Phe Leu Thr Cys Ser Arg Thr Gly Arg Ala Arg Glu Ala Tyr  
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Pro Leu Gly Ala Pro Glu Ala Ser Gly Lys Ser Gly Ala Gln Gly Glu  
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 35 40 45

Gln Ile Lys Ala Arg Asn Glu Leu Gly Val Tyr Leu Cys Asn Leu Thr  
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Val Ala Asp Leu Phe Tyr Ile Cys Ser Leu Pro Phe Trp Leu Gln Tyr  
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Val Leu Gln His Asp His Trp Ser His Asp Asp Leu Ser Cys Gln Val  
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Cys Gly Ile Leu Leu Tyr Glu Asn Ile Tyr Ile Ser Val Gly Phe Leu  
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Cys Cys Ile Ser Ile Asp Arg Tyr Leu Ala Val Ala His Pro Phe Arg  
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Phe His Gln Phe Arg Thr Leu Lys Ala Ala Met Gly Val Ser Ala Leu

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145	150	155															160
Glu Val Val Glu Asp Ala Asp Arg His Arg Val Cys Phe Glu His Tyr																	
	165	170															175
Pro Leu Glu Pro Arg Gln Arg Gly Ile Asn Tyr Tyr Arg Phe Leu Val																	
	180	185															190
Gly Phe Leu Phe Pro Ile Cys Leu Leu Leu Ala Ser Tyr Arg Gly Ile																	
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Leu Arg Ala Val Arg Arg Ser His Gly Thr Gln Lys Ser Arg Lys Asp																	
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Gln Ile Gln Arg Leu Val Leu Ser Thr Val Val Ile Phe Leu Ala Cys																	
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Phe Leu Pro Tyr His Val Leu Leu Leu Val Arg Ser Leu Trp Glu Ser																	
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Ser Cys Asp Phe Ala Lys Gly Ile Phe Asn Ala Tyr His Phe Ser Leu																	
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Leu Leu Thr Ser Phe Asn Cys Val Ala Asp Pro Val Leu Tyr Cys Phe																	
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Val Ser Glu Thr Thr His Arg Asp Leu Ala Arg Leu Arg Gly Ala Cys																	
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Val Asp Asp Ser Phe Lys Tyr Asn Leu Asn Gly Ala Val Tyr Ser Val  
 35 40 45

Val Phe Ile Leu Gly Leu Ile Thr Asn Ser Val Ser Leu Phe Val Phe  
 50 55 60

Cys Phe Arg Met Lys Met Arg Ser Glu Thr Ala Ile Phe Ile Thr Asn  
 65 70 75 80

Leu Ala Val Ser Asp Leu Leu Phe Val Cys Thr Leu Pro Phe Lys Ile  
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Phe Tyr Asn Phe Asn Arg His Trp Pro Phe Gly Asp Thr Leu Cys Lys  
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Ile Ser Gly Thr Ala Phe Leu Thr Asn Ile Tyr Gly Ser Met Leu Phe  
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Leu Thr Cys Ile Ser Val Asp Arg Phe Leu Ala Ile Val Tyr Pro Phe  
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Arg Ser Arg Thr Ile Arg Thr Arg Arg Asn Ser Ala Ile Val Cys Ala  
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Gly Val Trp Ile Leu Val Leu Ser Gly Gly Ile Ser Ala Ser Leu Phe  
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Ser Thr Thr Asn Val Asn Asn Ala Thr Thr Val Cys Phe Glu His Tyr  
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Pro Leu Glu Pro Arg Gln Arg Gly Ile Asn Tyr Tyr Arg Phe Leu Val  
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Gly Phe Leu Phe Pro Ile Cys Leu Leu Leu Ala Ser Tyr Arg Gly Ile  
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Leu Arg Ala Val Arg Arg Ser His Gly Thr Leu Ser Gln Ile Gly Thr  
225 230 235 240

Asn Lys Lys Lys Val Leu Lys Met Ile Thr Val His Met Ala Val Phe  
245 250 255

Val Val Cys Phe Val Pro Tyr Asn Ser Val Leu Phe Leu Tyr Ala Leu  
260 265 270

Val Arg Ser Gln Ala Ile Thr Asn Cys Phe Leu Glu Arg Phe Ala Lys  
275 280 285

Ile Met Tyr Pro Ile Thr Leu Cys Leu Ala Thr Leu Asn Cys Cys Phe  
290 295 300

Asp Pro Phe Ile Tyr Tyr Phe Thr Leu Glu Ser Phe Gln Lys Ser Phe  
305 310 315 320

Tyr Ile Asn Ala His Ile Arg Met Glu Ser Leu Phe Lys Thr Glu Thr  
325 330 335

Pro Leu Thr Thr Lys Pro Ser Leu Pro Ala Ile Gln Glu Glu Val Ser  
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Asp Gln Thr Thr Asn Asn Gly Gly Glu Leu Met Leu Glu Ser Thr Phe  
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Val Asp Asp Ser Phe Lys Tyr Asn Leu Asn Gly Ala Val Tyr Ser Val  
 35 40 45

Val Phe Ile Leu Gly Leu Ile Thr Asn Ser Val Ser Leu Phe Val Phe  
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Cys Phe Arg Met Lys Met Arg Ser Glu Thr Ala Ile Phe Ile Thr Asn  
 65 70 75 80

Leu Ala Val Ser Asp Leu Leu Phe Val Cys Thr Leu Pro Phe Lys Ile  
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Phe Tyr Asn Phe Asn Arg His Trp Pro Phe Gly Asp Thr Leu Cys Lys  
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Ile Ser Gly Thr Ala Phe Leu Thr Asn Ile Tyr Gly Ser Met Leu Phe  
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Leu Thr Cys Ile Ser Val Asp Arg Phe Leu Ala Ile Val Tyr Pro Phe  
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Arg Ser Arg Thr Ile Arg Thr Arg Arg Asn Ser Ala Ile Val Cys Ala  
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Gly Val Trp Ile Leu Val Leu Ser Gly Gly Ile Ser Ala Ser Leu Phe  
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Ser Thr Thr Asn Val Asn Asn Ala Thr Thr Thr Cys Phe Glu Gly Phe  
 180 185 190

Ser Lys Arg Val Trp Lys Thr Tyr Leu Ser Lys Ile Thr Ile Phe Ile  
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Glu Val Val Gly Phe Ile Ile Pro Leu Ile Leu Asn Val Ser Cys Ser  
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Ser Val Val Leu Arg Thr Leu Arg Lys Pro Ala Thr Leu Ser Gln Ile  
 225 230 235 240

Gly Thr Asn Lys Lys Lys Val Leu Lys Met Ile Thr Val His Met Ala  
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Val Phe Val Val Cys Phe Val Pro Tyr Asn Ser Val Leu Phe Leu Tyr  
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Ala Leu Val Arg Ser Gln Ala Ile Thr Asn Cys Phe Leu Glu Arg Phe  
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Ala Lys Ile Met Tyr Pro Ile Thr Leu Cys Leu Ala Thr Leu Asn Cys  
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Cys Phe Asp Pro Phe Ile Tyr Tyr Phe Thr Leu Glu Ser Phe Gln Lys  
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Ser Phe Tyr Ile Asn Ala His Ile Arg Met Glu Ser Leu Phe Lys Thr  
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Glu Thr Pro Leu Thr Thr Lys Pro Ser Leu Pro Ala Ile Gln Glu Glu  
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Val Ser Asp Gln Thr Thr Asn Asn Gly Gly Glu Leu Met Leu Glu Ser  
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Thr Phe  
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Thr Thr Thr Tyr Met Leu Asn Leu Ala Ile Ser Asp Leu Leu Phe Val  
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Phe Thr Leu Pro Phe Arg Ile Tyr Tyr Phe Val Val Arg Asn Trp Pro

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Leu Ala Ile Val	His Pro Phe Arg Ser Lys Thr	Leu Arg Thr Lys Arg				
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Asn Lys Pro Leu	Thr Leu Ser Arg Asn Lys Leu Ser	Lys Lys Lys Val				
	210		215		220	
Leu Lys Met Ile	Phe Val His Leu Val Ile Phe Cys Phe Cys Phe	Val				
	225		230		235	240
Pro Tyr Asn Ile	Thr Leu Ile Leu Tyr Ser Leu Met Arg Thr	Gln Thr				
	245		250		255	
Trp Ile Asn Cys	Ser Val Val Thr Ala Val Arg Thr Met Tyr	Pro Val				
	260		265		270	
Thr Leu Cys Ile	Ala Val Ser Asn Cys Cys Phe Asp Pro Ile Val Tyr					
	275		280		285	
Tyr Phe Thr Ser	Asp Thr Asn Ser Glu Leu Asp Lys Lys Gln Gln	Val				
	290		295		300	

His Gln Asn Thr  
305

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<213> Homo sapiens

<400> 13

Met Val Ser Val Asn Ser Ser His Cys Phe Tyr Asn Asp Ser Phe Lys  
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Tyr Thr Leu Tyr Gly Cys Met Phe Ser Met Val Phe Val Leu Gly Leu  
20 25 30

Val Ser Asn Cys Val Ala Ile Tyr Ile Phe Ile Cys Val Leu Lys Val  
35 40 45

Arg Asn Glu Thr Thr Thr Tyr Met Ile Asn Leu Ala Met Ser Asp Leu  
50 55 60

Leu Phe Val Phe Thr Leu Pro Phe Arg Ile Phe Tyr Phe Thr Thr Arg  
65 70 75 80

Asn Trp Pro Phe Gly Asp Leu Leu Cys Lys Ile Ser Val Met Leu Phe  
85 90 95

Tyr Thr Asn Met Tyr Gly Ser Ile Leu Phe Leu Thr Cys Ile Ser Val  
100 105 110

Asp Arg Phe Leu Ala Ile Val Tyr Pro Phe Lys Ser Lys Thr Leu Arg  
115 120 125

Thr Lys Arg Asn Ala Lys Ile Val Cys Thr Gly Val Trp Leu Thr Val  
130 135 140

Ile Gly Gly Ser Ala Pro Ala Val Phe Val Gln Ser Thr His Ser Gln  
145 150 155 160

Gly Asn Asn Ala Ser Glu Ala Cys Phe Glu Asn Phe Pro Glu Ala Thr  
165 170 175



Trp Lys Thr Tyr Leu Ser Arg Ile Val Ile Phe Ile Glu Ile Val Gly  
180 185 190

Phe Phe Ile Pro Leu Ile Leu Asn Val Thr Cys Ser Ser Met Val Leu  
195 200 205

Lys Thr Leu Thr Lys Pro Val Thr Leu Ser Arg Ser Lys Ile Asn Lys  
210 215 220

Thr Lys Val Leu Lys Met Ile Phe Val His Leu Ile Ile Phe Cys Phe  
225 230 235 240

Cys Phe Val Pro Tyr Asn Ile Asn Leu Ile Leu Tyr Ser Leu Val Arg  
245 250 255

Thr Gln Thr Phe Val Asn Cys Ser Val Val Ala Ala Val Arg Thr Met  
260 265 270

Tyr Pro Ile Thr Leu Cys Ile Ala Val Ser Asn Cys Cys Phe Asp Pro  
275 280 285

Ile Val Tyr Tyr Phe Thr Ser Asp Thr Ile Gln Asn Ser Ile Lys Met  
290 295 300

Lys Asn Trp Ser Val Arg Arg Ser Asp Phe Arg Phe Ser Glu Val His  
305 310 315 320

Gly Ala Glu Asn Phe Ile Gln His Asn Leu Gln Thr Leu Lys Ser Lys  
325 330 335

Ile Phe Asp Asn Glu Ser Ala Ala  
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<400> 14

Met Asn Gly Leu Glu Val Ala Pro Pro Gly Leu Ile Thr Asn Phe Ser  
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Leu Ala Thr Ala Glu Gln Cys Gly Gln Glu Thr Pro Leu Glu Asn Met  
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Leu Phe Ala Ser Phe Tyr Leu Leu Asp Phe Ile Leu Ala Leu Val Gly  
 35 40 45

Asn Thr Leu Ala Leu Trp Leu Phe Ile Arg Asp His Lys Ser Gly Thr  
 50 55 60

Pro Ala Asn Val Phe Leu Met His Leu Ala Val Ala Asp Leu Ser Cys  
 65 70 75 80

Val Leu Val Leu Pro Thr Arg Leu Val Tyr His Phe Ser Gly Asn His  
 85 90 95

Trp Pro Phe Gly Glu Ile Ala Cys Arg Leu Thr Gly Phe Leu Phe Tyr  
 100 105 110

Leu Asn Met Tyr Ala Ser Ile Tyr Phe Leu Thr Cys Ile Ser Ala Asp  
 115 120 125

Arg Phe Leu Ala Ile Val His Pro Val Lys Ser Leu Lys Leu Arg Arg  
 130 135 140

Pro Leu Tyr Ala His Leu Ala Cys Ala Phe Leu Trp Val Val Val Ala  
 145 150 155 160

Val Ala Met Ala Pro Leu Leu Val Ser Pro Gln Thr Val Gln Thr Asn  
 165 170 175

His Thr Val Val Cys Leu Gln Leu Tyr Arg Glu Lys Ala Ser His His  
 180 185 190

Ala Leu Val Ser Leu Ala Val Ala Phe Thr Phe Pro Phe Ile Thr Thr  
 195 200 205

Val Thr Cys Tyr Leu Leu Ile Ile Arg Ser Leu Arg Gln Gly Leu Arg  
 210 215 220

Val Glu Lys Arg Leu Lys Thr Lys Ala Val Arg Met Ile Ala Ile Val  
 225 230 235 240

Leu Ala Ile Phe Leu Val Cys Phe Val Pro Tyr His Val Asn Arg Ser  
 245 250 255

Val Tyr Val Leu His Tyr Arg Ser His Gly Ala Ser Cys Ala Thr Gln  
260 265 270

Arg Ile Leu Ala Leu Ala Asn Arg Ile Thr Ser Cys Leu Thr Ser Leu  
275 280 285

Asn Gly Ala Leu Asp Pro Ile Met Tyr Phe Phe Val Ala Glu Lys Phe  
290 295 300

Arg His Ala Leu Cys Asn Leu Leu Cys Gly Lys Arg Leu Lys Gly Pro  
305 310 315 320

Pro Pro Ser Phe Glu Gly Lys Thr Asn Glu Ser Ser Leu Ser Ala Lys  
325 330 335

Ser Glu Leu

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<400> 15

Met Thr Ser Ala Glu Ser Leu Leu Phe Thr Ser Leu Gly Pro Ser Pro  
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Ser Ser Gly Asp Gly Asp Cys Arg Phe Asn Glu Glu Phe Lys Phe Ile  
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35 40 45

Asn Ala Pro Thr Leu Trp Leu Phe Leu Phe Arg Leu Arg Pro Trp Asp  
50 55 60

Ala Thr Ala Thr Tyr Met Phe His Leu Ala Leu Ser Asp Thr Leu Tyr  
65 70 75 80

Val Leu Ser Leu Pro Thr Leu Val Tyr Tyr Tyr Ala Ala Arg Asn His  
85 90 95

Trp Pro Phe Gly Thr Gly Leu Cys Lys Phe Val Arg Phe Leu Phe Tyr

100					105					110					
Trp	Asn	Leu	Tyr	Cys	Ser	Val	Leu	Phe	Leu	Thr	Cys	Ile	Ser	Val	His
	115						120					125			
Arg	Tyr	Leu	Gly	Ile	Cys	His	Pro	Leu	Arg	Ala	Ile	Arg	Trp	Gly	Arg
	130					135					140				
Pro	Arg	Phe	Ala	Ser	Leu	Leu	Cys	Leu	Gly	Val	Trp	Leu	Val	Val	Ala
	145					150					155				160
Gly	Cys	Leu	Val	Pro	Asn	Leu	Phe	Phe	Val	Thr	Thr	Asn	Ala	Asn	Gly
				165					170					175	
Thr	Thr	Ile	Leu	Cys	His	Asp	Thr	Thr	Leu	Pro	Glu	Glu	Phe	Asp	His
			180					185					190		
Tyr	Val	Tyr	Phe	Ser	Ser	Ala	Val	Met	Val	Leu	Leu	Phe	Gly	Leu	Pro
		195					200					205			
Phe	Leu	Ile	Thr	Leu	Val	Cys	Tyr	Gly	Leu	Met	Ala	Arg	Arg	Leu	Tyr
	210					215					220				
Arg	Pro	Leu	Pro	Gly	Ala	Gly	Gln	Ser	Ser	Ser	Arg	Leu	Arg	Ser	Leu
	225					230					235				240
Arg	Thr	Ile	Ala	Val	Val	Leu	Thr	Val	Phe	Ala	Val	Cys	Phe	Val	Pro
				245					250					255	
Phe	His	Ile	Thr	Arg	Thr	Ile	Tyr	Tyr	Gln	Ala	Arg	Leu	Leu	Gln	Ala
			260				265						270		
Asp	Cys	His	Val	Leu	Asn	Ile	Val	Asn	Val	Val	Tyr	Lys	Val	Thr	Arg
		275					280					285			
Pro	Leu	Ala	Ser	Ala	Asn	Ser	Cys	Leu	Asp	Pro	Val	Leu	Tyr	Leu	Phe
	290					295					300				
Thr	Gly	Asp	Lys	Tyr	Arg	Asn	Gln	Leu	Gln	Gln	Leu	Cys	Arg	Gly	Ser
	305					310					315				320
Lys	Pro	Lys	Pro	Arg	Thr	Ala	Ala	Ser	Ser	Leu	Ala	Leu	Val	Thr	Leu
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His Glu Glu Ser Ile Ser Arg Trp Ala Asp Thr His Gln Asp Ser Thr  
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Phe Ser Ala Tyr Glu Gly Asp Arg Leu  
 355 360

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<400> 16

Met Ser Ala Pro Ser Thr Leu Pro Pro Gly Gly Glu Glu Gly Leu Gly  
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Thr Ala Trp Pro Ser Ala Ala Asn Ala Ser Ser Ala Pro Ala Glu Ala  
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Glu Glu Ala Val Ala Gly Pro Gly Asp Ala Arg Ala Ala Gly Met Val  
 35 40 45

Ala Ile Gln Cys Ile Tyr Ala Leu Val Cys Leu Val Gly Leu Val Gly  
 50 55 60

Asn Ala Leu Val Ile Phe Val Ile Leu Arg Tyr Ala Lys Met Lys Thr  
 65 70 75 80

Ala Thr Asn Ile Tyr Leu Leu Asn Leu Ala Val Ala Asp Glu Leu Phe  
 85 90 95

Met Leu Ser Val Pro Phe Val Ala Ser Ser Ala Ala Leu Arg His Trp  
 100 105 110

Pro Phe Gly Ser Val Leu Cys Arg Ala Val Leu Ser Val Asp Gly Leu  
 115 120 125

Asn Met Phe Thr Ser Val Phe Cys Leu Thr Val Leu Ser Val Asp Arg  
 130 135 140

Tyr Val Ala Val Val His Pro Leu Arg Ala Ala Thr Tyr Arg Arg Pro  
 145 150 155 160

Ser Val Ala Lys Leu Ile Asn Leu Gly Val Trp Leu Ala Ser Leu Leu  
 165 170 175

Val Thr Leu Pro Ile Ala Ile Phe Ala Asp Thr Arg Pro Ala Arg Gly  
 180 185 190

Gly Gln Ala Val Ala Cys Asn Leu Gln Trp Pro His Pro Ala Trp Ser  
 195 200 205

Ala Val Phe Val Val Tyr Thr Phe Leu Leu Gly Phe Leu Leu Pro Val  
 210 215 220

Leu Ala Ile Gly Leu Cys Tyr Leu Leu Ile Val Gly Lys Met Arg Ala  
 225 230 235 240

Val Ala Leu Arg Ala Gly Trp Gln Gln Arg Arg Arg Ser Glu Lys Lys  
 245 250 255

Ile Thr Arg Leu Val Leu Met Val Val Val Val Phe Val Leu Cys Trp  
 260 265 270

Met Pro Phe Tyr Val Val Gln Leu Leu Asn Leu Val Val Thr Ser Leu  
 275 280 285

Asp Ala Thr Val Asn His Val Ser Leu Ile Leu Ser Tyr Ala Asn Ser  
 290 295 300

Cys Ala Asn Pro Ile Leu Tyr Gly Phe Leu Ser Asp Asn Phe Arg Arg  
 305 310 315 320

Ser Phe Gln Arg Val Leu Cys Leu Arg Cys Cys Leu Leu Glu Gly Ala  
 325 330 335

Gly Gly Ala Glu Glu Glu Pro Leu Asp Tyr Tyr Ala Thr Ala Leu Lys  
 340 345 350

Ser Lys Gly Gly Ala Gly Cys Met Cys Pro Pro Leu Pro Cys Gln Gln  
 355 360 365

Glu Ala Leu Gln Pro Glu Pro Gly Arg Lys Arg Ile Pro Leu Thr Arg  
 370 375 380

Thr Thr Thr Phe

385

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Leu Glu Ala Lys Ile Trp Val Val Pro Ala Pro Ser  
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<210> 18  
<211> 12  
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<400> 18

Thr Gly Gln Thr Lys Ile Trp Tyr Pro His Ser Thr  
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<210> 19  
<211> 12  
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<220>  
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<400> 19

Val Tyr Ser Lys Val Trp Leu Leu Pro Ala Gly Gln  
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<400> 20

His Leu Lys Val Trp Glu Val Arg Ser Pro Gly Pro  
1 5 10

<210> 21

<211> 12  
<212> PRT  
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<400> 21

Asn Ala Lys Val Trp Thr Val Pro Ser Lys Pro Pro  
1 5 10

<210> 22  
<211> 12  
<212> PRT  
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<400> 22

Lys Val Trp Ile Pro Thr Ser Thr Trp Leu Gln Thr  
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<400> 23

Lys Val Trp Ser Leu Asp Ile Ser Ala Pro Gln His  
1 5 10

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<400> 24

Ala Asp Val Leu His Ala Thr Pro Ser Glu Lys Val Trp Leu Leu  
1 5 10 15

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<212> PRT  
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<400> 25

Lys Val Val Asp Ser Asn His Lys Val Trp Leu Val Ser Gln Thr  
1 5 10 15

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<400> 26

Asn His Asp Asn Thr Lys Lys Val Trp Ile Leu Ala  
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23

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<220>  
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acactgtgtg aa 72

<210> 35  
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<400> 35

Lys Leu Trp Ile Leu Ala Asp Asn Phe Thr Asn Arg  
1 5 10

<210> 36  
<211> 15  
<212> PRT  
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<220>  
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<400> 36

Ile Asn Ser Pro His Glu Leu Lys Lys Leu Trp Leu Leu Pro Pro  
1 5 10 15

<210> 37  
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<220>  
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<400> 37

Phe Pro His Lys Leu Trp Val Leu Pro Val Lys Thr

1	5	10
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Lys	Leu	Trp	Thr	Ile	Pro	Ser	Asn	Asp	Tyr	Pro	Pro
1				5					10		

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 <400> 39

Lys	Leu	Trp	Glu	Leu	Tyr	Pro	Thr	Val	Pro	Ala	Gly
1				5					10		

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Lys	Leu	Trp	Ile	Pro	His	Thr	Ser	Gln	Pro	Phe	Leu
1				5					10		

<210> 41  
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Lys	Leu	Trp	Asp	Ile	Thr	Ala	Pro	Leu	Pro	Lys	Pro
1				5				10			

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<400> 42

Asn Ala Lys Leu Trp Gln Ile Pro Ala Ile Pro His  
1 5 10

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Lys Leu Trp Val Pro Gln Asn Arg Pro Glu Leu Val  
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<400> 44

Lys Leu Trp Glu Leu Tyr Pro Thr Val Pro Ala Gly  
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<400> 46

Thr Thr Pro His Arg Val Trp Asn Leu Pro Leu Glu Ala Gln Gln  
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36

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36

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<210> 74

<211> 15  
<212> PRT  
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<400> 74

Ser Arg Val Ser Gly Ala Lys Val Trp Phe Leu Ser Asn Trp Ser  
1 5 10 15

<210> 75  
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<400> 75

Ala Met Asn Ser His Lys Ile Trp Met Leu Pro His  
1 5 10

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<400> 76

Gly Leu Lys Ile Trp Ser Leu Pro Pro His His Gly  
1 5 10

<210> 77  
<211> 12  
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<400> 77

Lys Val Trp Gln Met Ala Pro Thr Thr Ala Phe Ser  
1 5 10

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 <221> misc\_feature  
 <222> (30)..(30)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (33)..(33)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (34)..(36)  
 <223> This codon may be replaced by AGY  
  
 <400> 78  
 ctngargcna arathtgggt ngtnccngcn ccntcn

36

<210> 79  
 <211> 36  
 <212> DNA  
 <213> Artificial  
  
 <220>

<223> oligonucleotide

<220>

<221> misc\_feature

<222> (3)..(3)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (6)..(6)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (12)..(12)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (27)..(27)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (31)..(33)

<223> This codon may be replaced by AGY

<220>

<221> misc\_feature

<222> (36)..(36)

<223> n is a, c, g, or t

<400> 79

gcnggcncara cnaarathtg gtayccncay tcnacn

,36

<210> 80

<211> 36

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide

<220>

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<222> (3)..(3)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (7)..(9)

<223> This codon may be replaced by AGY

<220>

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<222> (15)..(15)  
<223> n is a, c, g, or t

<220>  
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<222> (19)..(21)  
<223> This codon may be replaced by CTR

<220>  
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<222> (22)..(24)  
<223> This codon may be replaced by CTR

<220>  
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<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> n is a, c, g, or t

<400> 80  
gtntaytcna argtntggct nctnccngcn ggn car

36

<210> 81  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
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<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> n is a, c, g, or t

<220>  
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<222> (21)..(21)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (22)..(24)  
<223> This codon may be replaced by AGR

<220>  
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<222> (25)..(27)  
<223> This codon may be replaced by AGY

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<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
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<222> (33)..(33)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
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<223> n is a, c, g, or t

<400> 81  
cayctnaarg tntgggargt ncgntcnccn ggnccn

36

<210> 82  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
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<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> n is a, c, g, or t



<220>  
 <221> misc\_feature  
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 <223> n is a, c, g, or t  
  
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 <222> (25)..(27)  
 <223> This codon may be replaced by AGY  
  
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 <223> n is a, c, g, or t  
  
 <400> 82  
 aaygcnaarg tntggacngt nccntcnaar ccnccn

36

<210> 83  
 <211> 36  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> oligonucleotide  
  
 <220>  
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 <223> n is a, c, g, or t  
  
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 <222> (15)..(15)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (18)..(18)  
 <223> n is a, c, g, or t  
  
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 <222> (19)..(21)  
 <223> This codon may be replaced by AGY  
  
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 <222> (24)..(24)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (28)..(30)

<223> This codon may be replaced by TTR

<220>

<221> misc\_feature

<222> (36)..(36)

<223> n is a, c, g, or t

<400> 83

aargtntgga thccnacntc nacntggctn caracn

36

<210> 84

<211> 36

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide

<220>

<221> misc\_feature

<222> (6)..(6)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (10)..(12)

<223> This codon may be replaced by AGN

<220>

<221> misc\_feature

<222> (13)..(15)

<223> This codon may be replaced by TTR

<220>

<221> misc\_feature

<222> (22)..(24)

<223> This codon may be replaced by AGY

<220>

<221> misc\_feature

<222> (27)..(27)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (30)..(30)

<223> n is a, c, g, or t

<400> 84

aargtntggt cnctngayat htngngcncn carcay

36

<210> 85  
 <211> 45  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> oligonucleotide  
  
 <220>  
 <221> misc\_feature  
 <222> (3)..(3)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (9)..(9)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (10)..(12)  
 <223> This codon may be replaced by TTR  
  
 <220>  
 <221> misc\_feature  
 <222> (18)..(18)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (21)..(21)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (24)..(24)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (25)..(27)  
 <223> This codon may be replaced by AGY  
  
 <220>  
 <221> misc\_feature  
 <222> (36)..(36)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (40)..(42)  
 <223> This codon may be replaced by TTR  
  
 <220>

<221> misc\_feature  
<222> (43)..(45)  
<223> This codon may be replaced by TTR

<400> 85  
gcngaygtnc tncaygcnac nccntcngar aargtntggc tncctn

45

<210> 86  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (13)..(15)  
<223> This codon may be replaced by AGY

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (31)..(33)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (37)..(39)  
<223> This codon may be replaced by AGY

<220>  
<221> misc\_feature  
<222> (45)..(45)  
<223> n is a, c, g, or t

<400> 86  
aargtngtng aytcaayca yaargtntgg ctngtntcnc aracn

45

<210> 87  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (15)..(15)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (31)..(33)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 87  
aaycaygaya ayacnaaraa rgtntggath ctngcn

36

<210> 88  
<211> 39  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (16)..(18)  
<223> This codon may be replaced by TTR

<220>

<221> misc\_feature  
 <222> (21)..(21)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (33)..(33)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (37)..(39)  
 <223> This codon may be replaced by AGR  
  
 <400> 88  
 aarctnttrt ggathctngc ngayaaytty acnaaycgn

39

<210> 89  
 <211> 45  
 <212> DNA  
 <213> Artificial

<220>  
 <223> oligonucleotide

<220>  
 <221> misc\_feature  
 <222> (7)..(9)  
 <223> This codon may be replaced by AGN

<220>  
 <221> misc\_feature  
 <222> (12)..(12)  
 <223> n is a, c, g, or t

<220>  
 <221> misc\_feature  
 <222> (19)..(21)  
 <223> This codon may be replaced by TTR

<220>  
 <221> misc\_feature  
 <222> (28)..(30)  
 <223> This codon may be replaced by TTR

<220>  
 <221> misc\_feature  
 <222> (34)..(36)  
 <223> This codon may be replaced by TTR

<220>  
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 <222> (37)..(39)  
 <223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (42)..(42)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (45)..(45)  
<223> n is a, c, g, or t

<400> 89  
athaaytcnc cncaygarct naaraarctn tggctnctnc cnccn

45

<210> 90  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (13)..(15)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (22)..(24)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 90  
ttyccncaya arctntgggt nctnccngtn aaracn

36

<210> 91  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (19)..(21)  
<223> This codon may be replaced by AGY

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 91  
aarctntgga cnathccntc naaygaytay ccncn

36

<210> 92  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide



<220>  
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<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
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<222> (13)..(15)  
<223> This codon may be replaced by TTR

<220>  
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<222> (21)..(21)  
<223> n is a, c, g, or t

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<222> (24)..(24)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 92  
aarcnttggg arcnttaycc nacngtnccn gcnggn

36

<210> 93  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
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<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (15)..(15)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (22)..(24)  
<223> This codon may be replaced by AGY

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (34)..(36)  
<223> This codon may be replaced by TTR

<400> 93  
aarctntgga thcncayac ntcncarccn ttyctn

36

<210> 94  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
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<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (24)..(24)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (25)..(27)

<223> This codon may be replaced by TTR

<220>

<221> misc\_feature

<222> (30)..(30)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (36)..(36)

<223> n is a, c, g, or t

<400> 94

aarctntggg ayathaacngc nccnctnccn aarccn

36

<210> 95

<211> 36

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide

<220>

<221> misc\_feature

<222> (6)..(6)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (10)..(12)

<223> This codon may be replaced by TTR

<220>

<221> misc\_feature

<222> (24)..(24)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (27)..(27)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (33)..(33)

<223> n is a, c, g, or t

<400> 95

aaygcnaarc tntggcarat hccngcnath ccncay

36

<210> 96  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (15)..(15)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (22)..(24)  
<223> This codon may be replaced by AGR

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (31)..(33)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 96  
aarcntntggg tncncaraa ycgncngar ctngtn

36

<210> 97  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature  
<222> (4)..(6)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (13)..(15)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> n is a, c, g, or t

<400> 97  
aarcntntggg arctntaycc nacngtnccn gcnggn

36

<210> 98  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<220>  
<221> misc\_feature

<222> (3)..(3)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (4)..(6)  
 <223> This codon may be replaced by AGY  
  
 <220>  
 <221> misc\_feature  
 <222> (9)..(9)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (12)..(12)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (16)..(18)  
 <223> This codon may be replaced by AGR  
  
 <220>  
 <221> misc\_feature  
 <222> (21)..(21)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (28)..(30)  
 <223> This codon may be replaced by TTR  
  
 <220>  
 <221> misc\_feature  
 <222> (33)..(33)  
 <223> n is a, c, g, or t  
  
 <220>  
 <221> misc\_feature  
 <222> (36)..(36)  
 <223> n is a, c, g, or t  
  
 <400> 98  
 acntcnaacnc cncaycgngt ntggcarctn ccngtn  
  
  
 <210> 99  
 <211> 45  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> oligonucleotide  
  
 <220>

36

<221> misc\_feature  
<222> (3)..(3)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (13)..(15)  
<223> This codon may be replaced by AGR

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (25)..(27)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n is a, c, g, or t

<220>  
<221> misc\_feature  
<222> (31)..(33)  
<223> This codon may be replaced by TTR

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> n is a, c, g, or t

<400> 99  
acnacncnc aycngntntg gaayctnccn ctngargcnc arcar

45

<210> 100  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<400> 100

actcatggtt ttggtcatcg tgtgtggagt gttccgttgc gttcg 45

<210> 101  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<400> 101  
agtagggtgt ctggtgcgaa ggtttggttt ttgagtaatt ggtct 45

<210> 102  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<400> 102  
gctatgaata gtcataagat ttggatgttg ccgcat 36

<210> 103  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<400> 103  
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<220>  
<223> oligonucleotide

<400> 104  
aaggtttggt agatggcgcc tacgactgcg ttttcg 36

<210> 105  
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<212> DNA  
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<220>



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45

<210> 106  
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<400> 107

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<223> n is a, c, g, or t

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<222> (34)..(36)

<223> This codon may be replaced by AGY

<400> 109

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<210> 110

<211> 330

<212> PRT

<213> Homo sapiens

<400> 110

Met Glu Pro Asn Gly Thr Phe Ser Asn Asn Asn Ser Arg Asn Cys Thr  
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Ile Glu Asn Phe Lys Arg Glu Phe Phe Pro Ile Val Tyr Leu Ile Ile  
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Phe Phe Trp Gly Val Leu Gly Asn Gly Leu Ser Ile Tyr Val Phe Leu  
35 40 45

Gln Pro Tyr Lys Lys Ser Thr Ser Val Asn Val Phe Met Leu Asn Leu  
50 55 60

Ala Ile Ser Asp Leu Leu Phe Ile Ser Thr Leu Pro Phe Arg Ala Asp  
65 70 75 80

Tyr Tyr Leu Arg Gly Ser Asn Trp Ile Phe Gly Asp Leu Ala Cys Arg  
85 90 95

Ile Met Ser Tyr Ser Leu Tyr Val Asn Met Tyr Ser Ser Ile Tyr Phe  
 100 105 110

Leu Thr Val Leu Ser Val Val Arg Phe Leu Ala Met Val His Pro Phe  
 115 120 125

Arg Leu Leu His Val Thr Ser Ile Arg Ser Ala Trp Ile Leu Cys Gly  
 130 135 140

Ile Ile Trp Ile Leu Ile Met Ala Ser Ser Ile Met Leu Leu Asp Ser  
 145 150 155 160

Gly Ser Glu Gln Asn Gly Ser Val Thr Ser Cys Leu Glu Leu Asn Leu  
 165 170 175

Tyr Lys Ile Ala Lys Leu Gln Thr Met Asn Tyr Ile Ala Leu Val Val  
 180 185 190

Gly Cys Leu Leu Pro Phe Phe Thr Leu Ser Ile Cys Tyr Leu Leu Ile  
 195 200 205

Ile Arg Val Leu Leu Lys Val Glu Val Pro Glu Ser Gly Leu Arg Val  
 210 215 220

Ser His Arg Lys Ala Leu Thr Thr Ile Ile Ile Thr Leu Ile Ile Phe  
 225 230 235 240

Phe Leu Cys Phe Leu Pro Tyr His Thr Leu Arg Thr Val His Leu Thr  
 245 250 255

Thr Trp Lys Val Gly Leu Cys Lys Asp Arg Leu His Lys Ala Leu Val  
 260 265 270

Ile Thr Leu Ala Leu Ala Ala Ala Asn Ala Cys Phe Asn Pro Leu Leu  
 275 280 285

Tyr Tyr Phe Ala Gly Glu Asn Phe Lys Asp Arg Leu Lys Ser Ala Leu  
 290 295 300

Arg Lys Gly His Pro Gln Lys Ala Lys Thr Lys Cys Val Phe Pro Val  
 305 310 315 320

Ser Val Trp Leu Arg Lys Glu Thr Arg Val

325

330

<210> 111  
 <211> 337  
 <212> PRT  
 <213> Homo sapiens

<400> 111

Met Asn Glu Pro Leu Asp Tyr Leu Ala Asn Ala Ser Asp Phe Pro Asp  
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Tyr Ala Ala Ala Phe Gly Asn Cys Thr Asp Glu Asn Ile Pro Leu Lys  
 20 25 30

Met His Tyr Leu Pro Val Ile Tyr Gly Ile Ile Phe Leu Val Gly Phe  
 35 40 45

Pro Gly Asn Ala Val Val Ile Ser Thr Tyr Ile Phe Lys Met Arg Pro  
 50 55 60

Trp Lys Ser Ser Thr Ile Ile Met Leu Asn Leu Ala Cys Thr Asp Leu  
 65 70 75 80

Leu Tyr Leu Thr Ser Leu Pro Phe Leu Ile His Tyr Tyr Ala Ser Gly  
 85 90 95

Glu Asn Trp Ile Phe Gly Asp Phe Met Cys Lys Phe Ile Arg Phe Ser  
 100 105 110

Phe His Phe Asn Leu Tyr Ser Ser Ile Leu Phe Leu Thr Cys Phe Ser  
 115 120 125

Ile Phe Arg Tyr Cys Val Ile Ile His Pro Met Ser Cys Phe Ser Ile  
 130 135 140

His Lys Thr Arg Cys Ala Val Val Ala Cys Ala Val Val Trp Ile Ile  
 145 150 155 160

Ser Leu Val Ala Val Ile Pro Met Thr Phe Leu Ile Thr Ser Thr Asn  
 165 170 175

Arg Thr Asn Arg Ser Ala Cys Leu Asp Leu Thr Ser Ser Asp Glu Leu  
 180 185 190

Asn Thr Ile Lys Trp Tyr Asn Leu Ile Leu Thr Ala Thr Thr Phe Cys  
 195 200 205

Leu Pro Leu Val Ile Val Thr Leu Cys Tyr Thr Thr Ile Ile His Thr  
 210 215 220

Leu Thr His Gly Leu Gln Thr Asp Ser Cys Leu Lys Gln Lys Ala Arg  
 225 230 235 240

Arg Leu Thr Ile Leu Leu Leu Leu Ala Phe Tyr Val Cys Phe Leu Pro  
 245 250 255

Phe His Ile Leu Arg Val Ile Arg Ile Glu Ser Arg Leu Leu Ser Ile  
 260 265 270

Ser Cys Ser Ile Glu Asn Gln Ile His Glu Ala Tyr Ile Val Ser Arg  
 275 280 285

Pro Leu Ala Ala Leu Asn Thr Phe Gly Asn Leu Leu Leu Tyr Val Val  
 290 295 300

Val Ser Asp Asn Phe Gln Gln Ala Val Cys Ser Thr Val Arg Cys Lys  
 305 310 315 320

Val Ser Gly Asn Leu Glu Gln Ala Lys Lys Ile Ser Tyr Ser Asn Asn  
 325 330 335

Pro

<210> 112  
 <211> 339  
 <212> PRT  
 <213> Homo sapiens

<400> 112

Met Ala Asn Leu Asp Lys Tyr Thr Glu Thr Phe Lys Met Gly Ser Asn  
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Ser Thr Ser Thr Ala Glu Ile Tyr Cys Asn Val Thr Asn Val Lys Phe  
 20 25 30

Gln Tyr Ser Leu Tyr Ala Thr Thr Tyr Ile Leu Ile Phe Ile Pro Gly



35					40					45					
Leu	Leu	Ala	Asn	Ser	Ala	Ala	Leu	Trp	Val	Leu	Cys	Arg	Phe	Ile	Ser
50					55					60					
Lys	Lys	Asn	Lys	Ala	Ile	Ile	Phe	Met	Ile	Asn	Leu	Ser	Val	Ala	Asp
65					70					75					80
Leu	Ala	His	Val	Leu	Ser	Leu	Pro	Leu	Arg	Ile	Tyr	Tyr	Tyr	Ile	Ser
				85					90					95	
His	His	Trp	Pro	Phe	Gln	Arg	Ala	Leu	Cys	Leu	Leu	Cys	Phe	Tyr	Leu
			100					105					110		
Lys	Tyr	Leu	Asn	Met	Tyr	Ala	Ser	Ile	Cys	Phe	Leu	Thr	Cys	Ile	Ser
		115					120					125			
Leu	Gln	Arg	Cys	Phe	Phe	Leu	Leu	Lys	Pro	Phe	Arg	Ala	Arg	Asp	Trp
130					135					140					
Lys	Arg	Arg	Tyr	Asp	Val	Gly	Ile	Ser	Ala	Ala	Ile	Trp	Ile	Val	Val
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Gly	Thr	Ala	Cys	Leu	Pro	Phe	Pro	Ile	Leu	Arg	Ser	Thr	Asp	Leu	Asn
				165					170					175	
Asn	Asn	Lys	Ser	Cys	Phe	Ala	Asp	Leu	Gly	Tyr	Lys	Gln	Met	Asn	Ala
			180					185					190		
Val	Ala	Leu	Val	Gly	Met	Ile	Thr	Val	Ala	Glu	Leu	Ala	Gly	Phe	Val
		195					200					205			
Ile	Pro	Val	Ile	Ile	Ile	Ala	Trp	Cys	Thr	Trp	Lys	Thr	Thr	Ile	Ser
		210				215					220				
Leu	Arg	Gln	Pro	Pro	Met	Ala	Phe	Gln	Gly	Ile	Ser	Glu	Arg	Gln	Lys
225					230					235					240
Ala	Leu	Arg	Met	Val	Phe	Met	Cys	Ala	Ala	Val	Phe	Phe	Ile	Cys	Phe
				245					250					255	
Thr	Pro	Tyr	His	Ile	Asn	Phe	Ile	Phe	Tyr	Thr	Met	Val	Lys	Glu	Thr
			260					265					270		

Ile Ile Ser Ser Cys Pro Val Val Arg Ile Ala Leu Tyr Phe His Pro  
275 280 285

Phe Cys Leu Cys Leu Ala Ser Leu Cys Cys Leu Leu Asp Pro Ile Leu  
290 295 300

Tyr Tyr Phe Met Ala Ser Glu Phe Arg Asp Gln Leu Ser Arg His Gly  
305 310 315 320

Ser Ser Val Thr Arg Ser Arg Leu Met Ser Lys Glu Ser Gly Ser Ser  
325 330 335

Met Ile Gly